

LISTING OF CLAIMS:

1. (Currently amended) An oxidation sensor for an electrical circuit, comprising:

a ~~conductor~~ at least two conductors located on an insulating substrate;

a sensor trace located on the insulating substrate ~~adjacent the conductor~~ and located between the at least two conductors, wherein the sensor trace is configured to have a positive potential greater than a potential of the at least two conductors when a voltage is applied to the sensor trace; and

an oxidizable electrical component associated with the sensor trace, wherein the sensor trace is configured to oxidize at a rate greater than the electrical component when the sensor trace and the electrical component are exposed to a same oxidizing environment.

2. (Currently amended) The oxidation sensor as recited in Claim 1 wherein the sensor trace is configured to have a positive potential greater than a potential of the ~~conductor~~ at least two conductors in the presence of an applied voltage.

3. (Currently amended) The oxidation sensor as recited in Claim 1 wherein the sensor trace is located a distance from the ~~conductor~~ at least two conductors of about 2 μm or less.

4. (Currently amended) The oxidation sensor as recited in Claim 1 wherein the ~~conductor~~ is a at least two conductors are grounded ~~conductor~~.

5. (Original) The oxidation sensor as recited in Claim 1 wherein the sensor trace comprises a conductive material selected from the group consisting of:

titanium,
copper,
tungsten,
aluminum, and
tantalum

6. (Original) The oxidation sensor as recited in Claim 1 wherein the sensor trace comprises silicon.

7. (Original) The oxidation sensor as recited in Claim 1 further including bonds pads connected to the sensor trace.

8. (Original) The oxidation sensor as recited in Claim 1 wherein the sensor trace has a serpentine configuration.

9. (Original) The oxidation sensor as recited in Claim 9 wherein the serpentine configuration includes a pattern of angles.

10. (Original) The oxidation sensor as recited in Claim 10 wherein the angles range from about 25 degrees to about 175 degrees.

11. (Currently amended) The oxidation sensor as recited in Claim 1 wherein the sensor trace and ~~conductor~~ the at least two conductors have a serpentine configuration.

12. (Original) The oxidation sensor as recited in Claim 1 wherein the oxidation sensor is capped by a grounded roof layer.

13. (Original) The oxidation sensor as recited in Claim 1 wherein the sensor trace is unpassivated.

14. (Original) The oxidation sensor as recited in Claim 1 wherein the oxidizing environment includes a relative humidity of greater than 50% and voltages of greater than 10 volts.

15. (Original) The oxidation sensor as recited in Claim 1 wherein the sensor trace has a width less than 2 microns.

16. (Currently amended) A method of manufacturing an oxidation sensor for an electrical circuit, comprising:

forming ~~a conductor~~ at least two conductors on an insulating substrate; and

forming a sensor trace located on the insulating substrate ~~adjacent the conductor~~ and located between the at least two conductors, wherein the sensor trace is configured to have a positive potential greater than a potential of the at least two conductors when a voltage is applied to the sensor trace; and

31 associating an oxidizable electrical component with the sensor trace, wherein the sensor trace is configured to oxidize at a rate greater than the electrical component when the sensor trace and the electrical component are exposed to a same oxidizing environment.

Claim 17 is canceled.

18. (Original) The method as recited in Claim 16 wherein forming the sensor trace includes forming the sensor trace so that the sensor trace is located at a distance from the ~~conductor~~ at least two conductors of about 2 μm or less.

27 19 17. (Currently Amended) The method as recited in Claim 16 wherein forming the ~~conductor~~ at least two conductors includes forming a grounded ~~conductor~~ conductors.

20 18. (Currently Amended) The method as recited in Claim 16 wherein forming the sensor trace includes forming the sensor trace so that the sensor trace comprises a conductive material selected from the group consisting of:

titanium,

copper,

tungsten,

aluminum, and

tantalum.

2119. (Currently Amended) The method as recited in Claim 16 wherein forming the sensor trace includes forming the sensor trace so that the sensor trace comprises silicon.

2220. (Currently Amended) The method as recited in Claim 16 wherein forming a sensor trace includes forming bonds pads connected to the sensor trace.

3 2321. (Currently Amended) The method as recited in Claim 16 wherein forming the sensor trace includes forming the sensor trace with a serpentine configuration.

2422. (Currently Amended) The method as recited in Claim 2321 wherein forming the sensor trace with a serpentine configuration includes forming a pattern of angles.

2523. (Currently Amended) The method as recited in Claim 2422 wherein forming a pattern of angles includes forming a pattern of angles so that the angles range from about 25 degrees to about 175 degrees.

2624. (Currently Amended) The method as recited in Claim 16 wherein forming the sensor trace and ~~conductor~~ the at least two conductors include forming the sensor trace and ~~conductor~~ the at least two conductors include forming them into a serpentine configuration.

2725. (Currently Amended) The method as recited in Claim 16 wherein forming the ~~the~~ oxidation sensor includes forming the oxidation sensor such that it is capped by a grounded roof layer.

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2826. (Currently Amended) The method as recited in Claim 16 wherein forming the sensor trace includes forming an unpassivated sensor trace.

2927. (Currently Amended) The method as recited in Claim 16 wherein exposing the sensor trace and the electrical component to an oxidizing environment includes a relative humidity of greater than 50% and voltages of greater than 10 volts.

3028. (Currently Amended) The method as recited in Claim 16 wherein forming the sensor trace includes forming the sensor trace such that a width of the sensor trace is less than 2 microns.

3129. (Currently Amended) A micro-electromechanical device, comprising:

an actuator;

an actuation mechanism;

an oxidizable electrical component; and

an oxidation sensor, comprising:

~~a conductor~~ at least two conductors located on an insulating substrate; and

a sensor trace located on the insulating substrate ~~adjacent the conductor~~ and located between the at least two conductors, wherein the sensor trace is configured to have a positive

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potential greater than a potential of the at least two conductors when a voltage is applied to the sensor trace and configured to oxidize at a rate greater than the electrical component trace when the sensor trace and the electrical component are exposed to a same oxidizing environment.

Claim 32 is canceled.

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3331. (Currently Amended) The oxidation sensor as recited in Claim 3129 wherein the sensor trace is located a distance from the conductor at least two conductors of about 2 μm or less.

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3432. (Currently Amended) The oxidation sensor as recited in Claim 3129 wherein the conductor is a at least two conductors are grounded conductor.

3533. (Currently Amended) The oxidation sensor as recited in Claim 3129 wherein the sensor trace comprises a conductive material selected from the group consisting of:

titanium,

copper,

tungsten,

aluminum, and

tantalum.

3634. (Currently Amended) The oxidation sensor as recited in Claim 3129 wherein the sensor trace comprises silicon.

3735. (Currently Amended) The oxidation sensor as recited in Claim 3129 further including bonds pads connected to the sensor trace.

3836. (Currently Amended) The oxidation sensor as recited in Claim 3129 wherein the sensor trace has a serpentine configuration.

3937. (Currently Amended) The oxidation sensor as recited in Claim 3836 wherein the serpentine configuration includes a pattern of angles.

4038. (Currently Amended) The oxidation sensor as recited in Claim 3937 wherein the angles range from about 25 degrees to about 175 degrees.

4139. (Currently Amended) The oxidation sensor as recited in Claim 3129 wherein the sensor trace and ~~conductor~~ the at least two conductors have a serpentine configuration.

4240. (Currently Amended) The oxidation sensor as recited in Claim 3129 wherein the oxidation sensor is capped by a grounded roof layer.

4341. (Currently Amended) The oxidation sensor as recited in Claim 3129 wherein the electrical component and the sensor trace are unpassivated.

4442. (Currently Amended) The oxidation sensor as recited in Claim 3129 wherein the oxidizing environment includes a relative humidity of greater than 50% and voltages of greater than 10 volts.

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4543. (Currently Amended) The oxidation sensor as recited in Claim 3129 wherein the sensor trace has a width less than 2 microns.